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RECOMMENDATIONS OF THE WORK CONFERENCE ON LITERACY HELD FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT, UNITED STATES DEPARTMENT OF STATE, (AIRLIE HOUSE, WARRENTON, VIRGINIA, MAY 23-28, 1964). FINAL REPORT.

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THIS CONFERENCE REPORT BEGINS BY POINTING OUT THE COMPLEX RELATIONSHIPS BETWEEN THE SPREAD OF LITERACY AND THE INTERESTS AND ASPIRATIONS OF NATIONS AND INDIVIDUALS IN ORDER TO PROVIDE SOME GUIDANCE IN THE INITIAL ALLOCATION OF FUNDS AND PERSONNEL FOR NATIONAL LITERACY PROGRAMS. A NEED IS SEEN FOR IMPROVED INTERDISCIPLINARY UNDERSTANDING, CLOSER APPLICATION OF RESEARCH, LONG RANGE PLANNING OF EDUCATIONAL STRATEGIES, A LITERACY RESEARCH MODEL BASED ON LEARNERS IN ACTION, STUDIES IN DESCRIPTIVE LINGUISTICS (INCLUDING DIALECTS AND ORTHOGRAPHIES), RESEARCH IN ALL PHASES OF EXPERIMENTAL PSYCHOLOGY, DOCUMENTARY AND FIELD STUDIES IN SOCIOECONOMIC RESEARCH, AND OTHER RESEARCH ACTIVITIES. GUIDELINES FOR THE AGENCY FOR INTERNATIONAL DEVELOPMENT ARE ALSO SET FORTH ON THE MEANING AND THE MEASUREMENT OF LITERACY, ESSENTIAL LINGUISTIC AND PEDAGOGICAL CONSIDERATIONS, TECHNIQUES FOR MAINTAINING BASIC LITERACY SKILLS, RELATIONSHIPS BETWEEN THE AIMS AND OPERATIONS OF ADULT LITERACY PROGRAMS AND SCHOOL SYSTEMS, THE ROLE OF LITERACY IN COMMUNITY DEVELOPMENT, TEACHER SELECTION AND TRAINING, SUPPORTIVE SERVICES, PROGRAM EVALUATION, EDUCATIONAL METHODS, MANPOWER NEEDS AND QUALIFICATIONS, AND PROBLEM AREAS AND DESIRED STAGES IN LARGE SCALELITERACY PROGRAMS. (LY)

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# RECOMMENDATIONS OF THE WORK CONFERENCE ON LITERACY

held for the AGENCY FOR INTERNATIONAL DEVELOPMENT

UNITED STATES DEPARTMENT OF STATE, at

Airlie House, Warrenton, Virginia

May 23-28, 1964

Prepared and Edited by Alfred S. Hayes

FINAL REPORT

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## PREFACE

Some 700 million people cannot read and write their own or any other language, and the number is growing rather than diminishing. The situation is acute in what have been called the developing countries. Conferences which deal with various aspects of literacy are by their very number bearing witness to an intense interest in this problem. The resolution passed by the United Nations General Assembly in December, 1963, which invited the Secretary General of the United Nations "to explore ways and means of supporting national efforts for the eradication of illiteracy through a world campaign and other measures, if appropriate, of international cooperation and assistance, both financial and non-financial" is but one expression of the view that a rapid diffusion of both popular and special education - the first stage of which is literacy - has become a virtual sine qua non for the achievement of national economic, social and political goals, however diverse, and for the satisfaction of human needs and aspirations, however interpreted and described.

The Agency for International Development (AID) of the United States Department of State, wishing to respond to requests for advice in literacy problems originating in the developing countries, has realized that it is no simple matter to determine the precise place of literacy work in the total context of national development. The training and experience of many interested individuals and organizations have yielded valuable information which should be most useful to developing countries interested in doing an effective job in this bewilderingly complex field. Yet much of this information remains either unknown to responsible authorities, or is widely scattered and not easily accessible. Trained personnel remain scarce; there are manpower problems at every turn. Then, too, even a cursory examination of the kinds of problems which must be faced in the developing countries reveals gaps in our knowledge which only a concerted research effort of a broadly interdisciplinary character can possibly fill.

Through its Office of Technical Cooperation and Research, AID contracted with the Center for Applied Linguistics of the Modern Language Association[1] to assemble a team of linguists and literacy experts to consider literacy problems as they have emerged in these countries.

The mandate of the conferees was a direct reflection of the considerations enumerated above: (1) to produce an outline of research needs, with emphasis on projects which AID might support under its research program; (2) to produce guidelines for use by AID in handling literacy problems in various national situations. During the course of the conference, this mandate was modified only in minor ways which, it was felt, would strengthen the conclusions and recommendations of the participants.

The sessions of the conference were held at Airlie House, near Warrenton, Virginia, May 23 through May 28, 1964, under the chairmanship of Dr. Charles A. Ferguson, Director of the Center for Applied Linguistics. At the first meeting, the conferees heard presentations by Dr. Howard Leavitt, Education Officer, Office of Research and Analysis, and other members of the AID staff, who also responded to questions directed toward a clear understanding of AID's interest and the objectives it hoped the conference would achieve. Plenary sessions then heard accounts of literacy projects in which members of the group had been engaged, and presentations intended to clarify possible research approaches to literacy problems. Subcommittees drafted inventories of research projects which were presented to the whole group for discussion. The final task of the conference was to formulate field guidelines for AID. This

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1. The Center for Applied Linguistics is a non-profit professional organization established to serve as a clearinghouse and informal coordinating body in the application of linguistic science to practical language problems.

was accomplished by means of individual assignments to conferees, whose efforts were then presented to the group for discussion and refinement.

It should be noted here that, as used in the body of this report, the term literacy refers primarily to adult literacy. Research on linguistic and psychological problems should, however, produce results which can be applied in teaching children as well.

No formal papers were prepared for this conference. This report attempts to synthesize informal oral presentations to plenary sessions as recorded in notes and on tape, the contributions of those participants who, during the conference, labored long and hard at individual writing assignments, and discussion by all the participants, also gleaned from notes and tape recordings. The task of organizing, rewriting and editing was therefore a bit on the formidable side. A first draft was distributed to all the participants and their many valuable suggestions have been incorporated into this final version wherever feasible. It is hoped that the editor's own biases as a participant in the conference have been decently restrained, and that when they show, they also correspond to a reasonable consensus of the participants. In any case, he must claim full responsibility for the inevitable infelicities of style and inconsistencies of content which the careful reader is sure to unearth.

Special thanks are due to Dr. Harry Levin, Project Literacy, Cornell University, who, although unable to be present at the conference, generously offered valuable suggestions concerning literacy research, as did Grace Yeni-Komshian of the Center staff. Susan Millett's efficient handling of the many details of the conference arrangements is hereby also gratefully acknowledged.

Alfred S. Hayes

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## Literacy and National Development

The preface to this report acknowledged the widespread view that literacy, an inescapable stepping stone to higher levels of education, has become a *sine qua non* for the achievement of national economic, social and political goals, however diverse, and for the satisfaction of human needs and aspirations, however interpreted and described. Nothing in what follows should be construed as contradicting or opposing this view. It is rather the aim of this section to point out the complex nature of the relationships between the spread of literacy and both national and individual interests, in order to provide some guidance in the initial allocation of funds and personnel in a national literacy program.

The setting of national goals is a political matter. They are set by the governments of individual countries. The individual needs and aspirations of the people of any country will be affected to a greater or lesser degree by the nature of these goals. A developing national political and social "awareness," for example, as contrasted with participation only in local affairs, may well give the individual a different view of his needs, and thus reshape his aspirations. He may well now aspire to improve his economic status, for example, and be interested in any means of helping to bring this about, including becoming literate.

In considering the effects of literacy, certain aspects of human needs and aspirations are properly considered separately from those directly affected by politically-determined national goals. Philosophical and spiritual influences shape the individual in any culture. While advanced forms of philosophy and religion are not the exclusive property of literate societies, witness the great oral traditions of many non-literate cultures, there can be no doubt that literacy increases the possibility of the individual's conscious participation by making available to him the great documents of the world's religions and literatures.

There is yet another dimension of human experience among literate peoples which, strictly speaking, may be neither need nor aspiration among non-literates. This dimension is often termed "personal enrichment." A part of this personal enrichment obviously derives from an understanding of the content of what is read, but it is evident that there is more to it, since content, written or spoken, can arouse any human emotion, delight or indignation, contentment or dissatisfaction. A part of the personal enrichment experienced by literates seems to be a kind of inner satisfaction, a self-exaltation independent of reactions to content, which may well be a powerful factor in the development of the individual. The written word has freed man from nearly complete dependence on the presence of sound waves in the immediate vicinity. The inner satisfaction of which we spoke may be viewed, admittedly subjectively and introspectively, as stemming in part from sheer control of an added dimension of communicative experience, a dimension which enables one to share the thoughts of persons remote from the immediate scene or no longer living. The growth of this control increases the individual's sense of his own intellectual power, and thus contributes first to a heightening of personal dignity and ultimately to a re-evaluation of his own importance to society. That everyone should be entitled to this experience is indeed a value judgement, a belief, imposed by those to whom it is commonplace. But in the twentieth century such a value judgement is closely tied to widespread but often only vaguely articulated views of the nature of the dignity of modern man.

As growing control of the mechanics of reading is paired with growing understanding of what is read, the stage is set for the learner to <u>continue to learn</u>, indefinitely. Adam Curle has summed up the fundamental purpose of adult education in most developing

nations as the achievement of "modernization."[2] The adult in a modern society finds himself more and more in the position of having to continue to learn, whatever his formal education may have been. In whatever ways and on whatever models the developing nations eventually achieve a kind of modernization which is satisfactory to them, they are likely to come to assign increasing importance to adult learning as a continuous process. Such a dynamic conception of adult learning lends substance and momentum to the hope for more than modernization in the usual senses of the word -- to the hope that men everywhere will base more and more of their decision-making on culturally-valid choice and reason rather than on tradition and habit. In any modern society it is difficult indeed to conceive of a continuous learning process unsupported by access to the written word.

Turning now to politically-determined national goals, let us consider to what extent the consequences of literacy are predictable. Research in this complex area is scanty. As far as economic development is concerned, there seems to be a general relationship between the income per capita of various nations and the spread of literacy. We say "relationship," since simple correlations by no means imply cause and effect. On the one hand, literacy is obviously not the only factor affecting per capita income; on the other, many different factors affect how well and over how wide a territory people have learned to read and write. Even the simple correlation is by no means perfect. There are sufficient deviations to make us cautious of the assumption that increased adult literacy <u>as contrasted with other forms of investment</u>, will lead to commensurate economic gains. As for social and political consequences,

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2. Adam Curle, <u>World Campaign for Universal Literacy: Comment and Proposal</u> (Harvard University, Occasional Papers in Education and Development, No. 1) Cambridge, 1964, p. 20.

literacy may indeed, in the long run, contribute to increased political awareness; literate people may become willing to participate in national as well as local affairs (but see paragraph 2, page 1). There seems to be little doubt, nevertheless, that the economic and social returns of literacy are not immediate or obvious. Rather, they are often deferred and indirect. This observation surely points to the need for caution in making promises concerning the economic rewards of literacy (white-collar jobs, for example) which the emerging economy may not be able to support. Such unfulfilled promises can seriously undermine other efforts to improve the lot of the people concerned.

Furthermore, it seems quite clear that something more than a bare minimum of reading and writing skill is necessary if literacy is to have much effect on political and economic development. We have already mentioned that a growing control of the new medium of communication seems to be an essential ingredient of the personal rewards of literacy. Properly taught, the individual may respond at the outset, but his enthusiasm quickly wanes if his control does not steadily progress until he continues to read and write as part of his daily living. While actual performance requirements may be higher or lower depending on the circumstances, the completely successful literacy program will be one which continues until its trainees have reached such a self-sustaining level of achievement. If general adult learning is to be a continuous process, progress to this point is obviously essential. To put it another way, one must learn to read until one can read to learn. This takes time.

In sum, a kind of dual deferment seems to be operating here. Reaching a self-sustaining level of achievement in reading and writing will require some years of unremitting effort; the rewards which should accrue from having reached this level are likely to be deferred and indirect. Yet the praiseworthy fervor of many literacy

campaigns tends to create the impression that literacy and its rewards are somehow achievable virtually overnight. Such enthusiasm must be channelled into meticulous long-term planning, if real progress toward general adult literacy is to be made. Should a literacy campaign be unsuccessful -- and many have been -- the rewards of literacy may be postponed indefinitely.

Long-range planning is a complex task. Many of the problems will be discussed in the following pages. It is likely, however, that any literacy program must first face the question of whether the funds and personnel available should somehow be selective in their initial impact, affecting only part of the total population, or should be diffused as widely as possible. Some may find the idea of selectivity, which seems to favor some segment of the population ~~which~~ while neglecting others, difficult to defend, and there is no doubt that it can be politically unattractive. Yet, since resources - funds and personnel - are almost invariably limited, some kind of initial selectivity is virtually inevitable. The fact, is, however, that the general diffusion of literacy is only temporarily delayed by initial concentration on selected segments of the population. History indicates that literacy tends to diffuse outward from a few important centers.

Different goals may imply a different allocation of resources. Programs which choose to emphasize economic advantages should probably concentrate on those segments of the population whose skills are most directly enhanced by literacy. Peasant cultivators who become literate may perform their work more efficiently because they are now able, for example, to read the instructions on bags of fertilizer, to order seeds or other stocks from catalogs, to perform simple calculations when buying or selling, or to read the markings on farm machinery. Newly literate mechanics, plumbers, masons or other craftsmen may be able to read very simple manuals. Where the political

implications of adult literacy seem of paramount importance, on the other hand, a wider diffusion of resources may be indicated. It is possible, for example, to concentrate on making a very few people literate in every community.

While there can be no hard and fast rules for resource allocation, literacy campaign planners should look long and hard at the possibility of concentrating initially on areas where a good proportion of the adult population is already strongly motivated to learn to read and write, i.e. where there is already a high demand for literacy. A demand for literacy seems to follow in areas where significant economic changes have already taken place.[3] Such areas may well be the very areas suggested above, in which the economic rewards of a modest (but by definition self-sustaining) achievement in reading and writing should be forthcoming in a relatively short time. A strong and sustained demand for literacy may also be expected where participation in a religious society or group depends to a large extent on the ability to read the scriptures and devotional literature.

Summary Literacy is widely regarded as a vital element in the economic, socio-cultural and political development of any country, in the satisfaction of the needs and aspirations of its citizens, and in their personal enrichment. But it takes time to reach a satisfactory performance level in reading and writing, and the promised rewards may take even longer to materialize. Careful long-range planning is therefore an essential requirement of any national literacy program. This planning should provide for continuing the program until a self-sustaining level of achievement has been reached. This self-sustaining level is defined, in part, as one which permits continued learning through reading. Limited resources and certain specific goals suggest

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3. See, for example, Philip Foster, Education and Social Change in Ghana, in press, University of Chicago Press, 1965.

that program planners first concentrate on segments of the population where there is already a high demand for literacy. Generally speaking, these segments will be found in areas where significant economic or religious changes are taking place or are already established.

## Some Thoughts on Literacy Research

Embedded in the discussions of specific research problems were a number of rather general points which are recorded here in the hope that they may be helpful to those who must establish research priorities and evaluate individual research proposals, and to anyone interested in closing the usual gap between research and the practical application of its results.

Interdisciplinary Understanding The conference recognized that researchers representing different disciplines may not always have a clear understanding of the possibilities of techniques they themselves do not ordinarily use. The participants therefore took advantage of the presence of specialists from a number of different fields to offer accounts of the techniques which each field uses in its approaches to research problems. The experimental psychologist, for example, is accustomed to the small, neatly designed, tightly controlled experiment, in which every effort is made to arrive at a measured difference in performance in such a way that it can be attributed to a specific difference in experimental manipulation. Although acquainted with the survey techniques used by social psychologists and sociologists and aware that wide sampling may in some cases produce useful answers in situations which cannot be tightly controlled, he may nevertheless tend to overlook information from such sources, which can often generate hypotheses amenable to experimental treatment. Educators, in turn, may find the initial approaches of the experimental psychologist too remote from practical conditions to promise meaningful application. In this case they fail to appreciate that very often chains of small experiments, the design of each depending on the results of the previous one, are required to bridge the gap between initial approach and a stage which is close to practical learning conditions. And scholars from any of these fields may not understand what

the linguist means by research, e.g. the analysis of spoken and written varieties of a language in such a way as to produce a series of statements which constitute a description, hence one type of grammar, of the language.[4]

Research and Application -- Strategies of instruction[5] in literacy are inextricably linked with the entire range of considerations about which decisions must be made in planning any adult literacy program. The professed objectives of the program, the degree and kind of motivation of the prospective learners, the training of teachers, the choice of language, the choice of writing system, the state of knowledge about learning processes, the supporting services available -- all these and other considerations affect the "what" and the "how" of the teaching medium, the teaching materials, and hence the instructional strategy finally chosen. Ideally, the exact specification of "what" and "how," even decisions about "to whom," should eventually be based on the tested, appropriately integrated and adapted results of culturally pertinent research and experimentation which has exploited the collective knowledge and experience of scholars and teachers representing a number of different fields. In practice, all this is extremely difficult to achieve. Progress toward this end might be hastened if literacy research were planned in such a way as to be clearly related to practical problems while maintaining maximum scientific rigor for the research technique used. This could be said to be the purpose of an over-all framework or "model" for literacy research. While the mandate of the conference did not

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4. For a fuller statement concerning the training and activities of linguists, see "What is a Scientific Linguist?", Appendix A, page 53.

5. The term "method" has been used so loosely that it has little specific meaning. "Instructional strategy" is here used to refer to a "method" each of whose many components is known and has been the object of conscious choice, whether based on research or not. For details see question 9, page 42.

explicitly include the formulation of such a model, certain considerations that a literacy research model should account for do seem to emerge from conference discussion of specific problems. Let us list some of these considerations and see where they lead us.

1. No hard and fast line can be drawn between research and its applications. Rather, research in literacy problems, like that in many other areas, should proceed along a multi-disciplinary avenue in two directions -- from application to research and from research to application with no priority implied -- each stimulating the other. Psychological laboratory findings, for example, will always have to be translated into the complex teaching situation and tested. This testing process should stimulate new psychological research. The use of materials based on a sound linguistic analysis can, in the same way, yield new insights for linguistic research and thus, ultimately, more realistic teaching materials.

2. The long-range planning so essential to the success of any national literacy program must provide, as we have insisted earlier, for continuing the program until a level of achievement has been reached that permits the learner to continue to learn through reading. Achievement tests should be devised and administered as early in the program as possible and at periodic intervals throughout it. Besides determining if the learner is indeed learning to read or has retained what he has learned, the use of such tests can help to reveal learning problems which might then be solved by on-the-spot research. Such research should avoid the difficulties which have often plagued traditional "method" A versus "method" B comparisons, where each so-called method is actually a complex instructional strategy with so many variables that inconclusive results are nearly inevitable. This can be done by breaking down complex problems into manageable components

and by otherwise approximating the conditions of the psychological laboratory as closely as possible. By these means it should be possible to identify and replace clearly ineffective procedures before too large a superstructure has been built on them. To these ends, the conferees agreed, it would seem wise to include an evaluation and research component in the national literacy program from the very beginning.

3. Since any instructional strategy <u>can</u> be successful, the particular conditions which contribute to its success or failure should be identified.

<u>A Literacy Research Model</u> All these considerations seem to converge upon a single source and a single proving ground for productive literacy research -- and no doubt other kinds of research as well: the learner in action. Close observation and analysis of the behavior of the learner as he goes through the "curriculum" both tests previous research findings and stimulates new research directly related to his problems. This learner-in-action model seems to fit both the traditional classroom setting and situations using more recent approaches to learning and teaching.

Let us see how such a learner-in-action model might guide an actual literacy research program. While the traditional teacher-student-textbook-classroom strategy is an obviously favorable setting for observing the learner in action, it is interesting to try to apply our model to an even more controversial area, the use of television as a medium of instruction.[6] If possible, learners are observed as they progress through an actual program. Where no program is in operation which can provide

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6. For a more detailed discussion of the problems of "new media" research, see question 9, page 42ff.

opportunities for first hand observation, case histories and the practical experience of literacy workers can provide information concerning student problems and insights concerning solutions. Materials and methods are then devised or revised in such a way as to enhance the problem-solving capabilities of the medium, e.g. by manipulating the visual materials in a highly sophisticated manner. Such "sophisticated manipulation" clearly implies a review, not only of the techniques of television scriptwriters, but of relevant cultural, psychological and linguistic knowledge as well. The system of spelling, for example, may not always fit the learner's intuitive feel for the distinctive sounds of his language. It may be advisable to account for such spelling problems by changing the order of presentation and the amount of practice on certain points. Further, observation of the learner in action ought to provide leads for minimizing or compensating for obvious disadvantages of the medium, such as lack of immediate communication between student and teacher, and attendant difficulties in reinforcing correct responses and correcting wrong responses. Achievement tests are devised and administered at intervals to determine if the learner is indeed learning. On the basis of such tests and continued observation of the learner, small-scale on-the-spot experiments are conducted to test the effectiveness of alternate sequences or procedures, under conditions which permit good control of the variables which can otherwise confound the results. Problems too complex for small-scale treatment are broken down into simpler ones; where resources (funds, equipment, personnel) do not permit immediate treatment of certain problems, reasoned decisions are made and the problem earmarked as a special research project to be undertaken whenever and wherever the necessary resources can be found.

Self-instructional materials (including "programmed instruction" in the technical sense) may be developed, tested and revised in the same way. The proposed approach to research highlights not only learning problems, but the administrative and

economic constraints and personnel limitations which affect any program in practice. It can thus help to identify the particular conditions which contribute to the success or failure of the instructional strategy under investigation.

Interestingly enough, the model emphasizes its own limitations. Observers must know what to observe and how to analyze. Observation and analysis, either direct or indirect (i.e. postulated, or extracted from case histories) requires a clear understanding of what the learner is supposed to learn, or, more specifically, of what the designer of the observed learning tasks had defined as the learner's problem at each step. It is also worth pointing out that one can hardly expect unanimity on the part of observers. Analysis involves a critique of the task, a description of learner problems if any, and insights concerning solutions, including the postulation of alternate tasks and alternate procedures. The postulation of alternate tasks and alternate procedures consists, in effect, of framing research hypotheses. It is evident that the whole process of observation and analysis needs to be studied and specified much more closely.

## Recommended Research Projects

With respect to the proposed learner-oriented research model, the projects presented on the following pages may be conceived as deriving from problems posed by the observation and analysis, either direct or indirect, of the behavior of the learner in action as distilled from the experience of the conference participants. It seemed convenient, however, to group them, not in relation to the diverse practical programs from which many of them emerged, but according to the contributing discipline to whose techniques they seem most closely related. Many of them, however, require the services of scholars from several fields. Using this principle of organization, three large categories emerged: (1) studies based upon descriptive linguistics; (2)

studies in experimental psychology; (3) socio-economic studies. Certain related projects not clearly identifiable by contributing discipline are grouped under the heading "other studies."

Certain projects are outlined in some detail; most are merely sketched or simply named. Many could no doubt profit from further analysis into component questions. Some are much closer to the learner in action than others, and thus no doubt more immediately related to literacy problems as viewed from the vantage point of the field worker. However, no neat scheme of allocating priorities emerged during the conference, and no priorities are implied by the order or completeness of presentation.

Studies Based Upon Descriptive Linguistics Grouped under this heading are projects of fundamental importance to literacy programs, whose primary orientation is such that the principal investigator in each instance should be a linguistic scientist (see Appendix A).

1. Prototype linguistic analyses.

Existing language descriptions appear to be of relatively little value to literacy workers because (a) they are difficult to read and interpret, some recent descriptions being well-nigh unintelligible even to other linguists of a different theoretical orientation; (b) the information particularly needed by the literacy worker is buried in a mass of less relevant detail; (c) these descriptions ignore some aspects of the language which are of vital importance to the literacy worker.

A three-fold research project is therefore proposed, to include the prototype analysis of three sharply different languages (e.g. one each from Africa, India, Latin America), the immediate critical evaluation of these analyses by a committee of

linguists and educators, and a later critical evaluation of the analyses in the light of their use in literacy programs.

The linguistic analyses should pay special attention to phonological units larger than phonemes, and to grammatical structures larger than individual sentences, though not to the exclusion of attention to smaller structures. It should be noted that these larger structures are of particular relevance to orthographies. An orthography is not simply a set of letters representing the segmental phonemes of the language, but is a complete writing system involving such matters as morphophonemic representation, word division, intonation, phrasing, paragraphing, and the like.

A description of the larger grammatical structures involves problems of paragraph and discourse structure, appropriate sentence sequence, the use of connectives, pronouns, and other elements. In a given culture only certain arrangements of both smaller and larger linguistic structures are permitted. Selection among linguistically permitted arrangements of these structures and the words used in them constitutes appropriateness of "style" in that culture. The basis of selection is social. An analysis of the relevant linguistic features and their social correlates will make an important contribution to the design of materials which are simple and natural for the native speaker to read, yet sufficiently adult in content to maintain interest.

The analyses should also pay particular attention to dialect variation that may present a serious problem in any literacy program.

The analyses should be presented in a written style designed to be intelligible to the non-linguist and in a format designed for easy direct reference by literacy workers.

The immediate comparative evaluation should be performed by a committee composed of other linguists and a group of the educators and others who would use such a report. This committee should study copies of the report and criticize its readability, completeness, and usefulness, with the authors present to answer questions. The committee should suggest possible revisions and make recommendations as guidelines for other such literacy-oriented linguistic studies.

After such studies have been used as source material for a literacy program there should be a further evaluative study of their usefulness and shortcomings.

Personnel requirements:

a) for the initial analysis: three linguists, each with appropriate supporting personnel;

b) for the immediate evaluation: a conference of the authors of the analyses, three other linguists, several educators and literacy workers;

c) for the later evaluation: a conference of the authors of the analyses, with key personnel who have used the material in a literacy program.

2. Studies of ambiguities and confusion resulting from inadequate orthographies,[7] including compensating techniques in pedagogy.

A large number of the world's languages have inadequate orthographies which, for practical reasons, can be changed little if at all. The formation and adoption of new or modified orthographies are often subject to non-linguistic pressures which may make pedagogically simple solutions impossible.

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7. For a discussion of the meaning of "inadequacy" and further detail on orthographic problems, see J. Berry, "The Making of Alphabets," Proceedings of the VIII International Congress of Linguists, Oslo, 1958.

There is need, therefore, for the development of techniques for determining the exact nature of orthographic inadequacy, measuring the degree of ambiguity in reading and confusion in writing resulting from such inadequacy, and for the development of techniques for compensating for this inadequacy, in the construction of primers and in devising methods of teaching non-literates to read.

To this end, we propose a detailed study of four languages which have inadequate orthographies. The writing systems of the languages chosen should offer a wide range of orthographic problems. At least two of them should have writing systems which, for whatever reasons, are unlikely to be changed. If the other two are chosen from among languages where conditions are such that change is more likely, the studies would provide, as a by-product, useful information concerning some of the problems such change should try to solve.

Besides an analysis of the problems of these particular languages and recommendations for compensating techniques, the studies should include a summary of the investigating techniques developed, in a form that can be tested and revised in orthographic studies of other languages. It is further suggested that plans be formulated for appropriate field testing of the compensating techniques developed.

Personnel requirements (not including field testing):

A linguist full time for two years, or the equivalent in part-time assignments; a psychologist half time for the same period, with experience in elementary reading problems; appropriate supporting staff.

An advisory committee, meeting a minimum of twice during that period.

3. Case histories of literacy projects, with special emphasis on linguistic aspects.

Descriptions of those aspects of literacy operations which are of linguistic interest exist, but are widely scattered through the literature and are often hard to find. Existing documents should be collected, and then supplemented by accounts of schemes in progress. Such information can be elicited by correspondence and by questionnaire. The data acquired in this way should then be collated, analyzed, and cross-indexed in such a way as to produce a systematic account of the present state of our knowledge.

Personnel requirements:

A linguist part-time for two years, plus clerical and research assistance.

4. A study of the degree and kind of bilingualism, multilingualism, or diglossia in three representative language situations, with special reference to the linguistic, social and psychological factors affecting the learning of the needed language or languages.

Three representative language situations are: (1) an area in which an early transition is made from the local to the official language, e.g. Mexico, Peru, the Philippines; or an African country in which French is the official language; (2) an area in which multilingualism is accepted as the norm, e.g. Paraguay; or Ghana, Nigeria or other African country where English is the official language; (3) an area in which a creole or pidgin language is widely spoken whose vocabulary (not grammar) is closely related to that of the official language, e.g. Haiti or Melanesia.

Systematic knowledge of the problems of bilingual and multilingual areas is by no means such as to permit the linguist to answer with confidence many of the questions put to him by officials who seek his advice. Of many possible projects in

this area, the present one contains elements of immediate relevance to the special literacy problems of a number of the developing countries, and should furnish important guidelines for comparable language situations. The products of this study should include, for example, a detailed description of the factors involved in the choice of orthographies in the relevant languages, and, if possible, the results of some experimentation or field testing of different orthographies, with reference both to the first language and to transition to the second language.

Personnel requirements:

This seems to be a long-term project requiring for perhaps three years or more a team consisting of one or more linguists, a psychologist, and a sociologist, with appropriate supporting staff and consultant services.

Studies In Experimental Psychology Most of the projects recommended under this heading can be conceived either as laboratory investigations or as on-the-spot research in connection with specific literacy programs. In situations involving two or more languages, many useful experiments can be performed which deal with interference versus facilitation as a function of the nature of their respective phonologies, grammars, and writing systems. Some of the studies to be suggested here treat aspects of this general problem. Certain studies not primarily experimental in nature are included here rather than elsewhere in order to avoid irrelevant problems of classification. All are intended to contribute to our knowledge of how people of different ages and national origins can best learn to read and write their own and other languages.

It should be noted that the Cooperative Research Branch of the United States Office of Education is supporting Project Literacy, a basic research program on reading centered at Cornell University. Thus far, Project Literacy has conducted its

research in the context of Americans learning to read English. The projects listed below stress the urgent need for investigations in other language situations using different age groups, and for cross-cultural comparisons, and thus extend the present range of the studies being performed by Project Literacy. Most of these projects can be supported by grants to or contracts with American universities, with due allowance for the possibility that some of the work may have to be done abroad. In most of the studies, the principal investigator should be a qualified experimental psychologist, aided by a suitable number of graduate assistants. Each project should have one or more consultants in linguistics and literacy as needed. Field projects regularly require the services of one or more experienced field workers in literacy, in addition to the principal investigator and consultants in linguistics.

5. A series of studies of what the adult non-literate, in different cultural settings, brings with him as he begins to learn to read and write, for example:

   a. capacity for concept formation and thinking;
   b. capacity for perceptual learning through different sense modalities (auditory, visual, tactile, kinaesthetic);
   c. memory span;
   d. motivation to learn to read and write his language or a second language;
   e. in bilingual and multilingual situations, attitudes toward particular ethnic groups and other languages.

6. A study of the reactions of adult non-literates to formal teaching situations, to produce guidelines for the efficient conduct of adult literacy classes.

7. A study of the relative advantages of different combinations of auditory and visual stimuli in teaching reading and writing to people of different ages. Such a study could yield, among other things, valuable insights into the problem of when

to introduce writing into the literacy curriculum.

8. A study of the factors which can affect the learning of letter shapes, including the efficacy of mnemonic devices such as pictorial analogs, e.g. the Laubach system.

9. A study of the relationship between linguistic or psychological segmentation and the discrimination of visual configurations. Such a study could, for example, yield valuable information which could influence the choice of diacritics and tone indicators in the making of new orthographies. The indicated choices would then be subject to modification by typographical considerations.

10. Studies to determine the factors affecting a choice among these orders of learning in literacy programs: a) literacy in the vernacular before fluency in the second language; b) fluency in the second language before literacy in it; c) simultaneous fluency and literacy in the second language (cf. project 4).

11. A study of learning efficiency when variable writing-to-sound correspondences are presented before or after stable correspondences, in a number of critical languages. The writing-to-sound correspondences of the orthographies of the languages selected should be accurately described by linguists.

12. An extension of current investigations of the learning of variable writing-to-sound correspondences such that its findings could be applied to the problem of the merits of an intermediate teaching alphabet, (e.g. the systems of Pitman-Downey or Laubach) or of special transcriptions.

13. A study of the value of maximizing writing-to-sound correspondences as cues to word identification, while minimizing other kinds of cues, such as those provided by context or by illustrations.

14. The formulation of diagnostic tests to determine individual differences in ability to generalize writing-to-sound correspondences.

15. A study to determine the boundaries of "meaning units" which are relevant to the reading skill of the expert native reader in different languages, including some of non-Indo-European origin. This kind of information would be useful in establishing stylistic criteria for the construction of reading materials and for the use of punctuation (cf. project 1).

16. A study to develop measures of "readability," using criteria independent of the individual's ability to read. Such measures would be very useful in constructing series of graded readers for literacy programs (cf. projects 1 and 15).

17. A study of the utility of visual differentiation of homophones.

18. A descriptive study of the assumptions about learning processes inherent in current methods of literacy training, and their relationship to psychological theory. Wilga M. Rivers, The Psychologist and the Foreign-Language Teacher (University of Chicago Press, 1964), is suggested as a possible model.

The following projects deal with aspects of programmed literacy training, with emphasis on self-instruction. Successful self-instructional courses, utilizing the widely-publicized principles of programmed instruction, would obviously solve many problems in the literacy field. Literacy workers must understand, however, that the field testing of such programs does not test the efficiency of "programmed instruction" as such, but only the success of the particular course used. The construction of programmed self-instructional courses is an expensive, arduous and time-consuming task. The extremely close analysis of the desired behavior of the learner generates research problems at every turn, many of which are implied in the basic research in

learning processes suggested above. Certain other experiments suggest themselves, however:

19. The development of optimum schedules of reinforcement for the learning of writing-to-sound correspondences.

20. The development of optimum schedules of reinforcement for the learning of responses to various "meaning units" as determined empirically or preferably from the results of project 15 above. Projects 19 and 20 should be replicated in the field in different language situations.

21. Much work in remedial reading instruction has been done in the United States. Certain remedial reading procedures of known value could be selected, and a short program developed for field testing in several language areas.

22. Also suggested is a full-scale literacy programming project in three phases as follows:

Phase 1. A feasibility study of the construction of a prototype program for self-instructional adult literacy training, on which other programs for different languages and orthographies might be based. This preliminary study would analyze and illustrate the problems inherent in the construction of such a program, and, if possible, suggest a modus operandi for prototype course construction. The study should formulate criteria to guide the close observation and analysis of the behavior of the learner in action on which successful programming ultimately depends (cf. pp. 11-13 ). Observer bias must somehow be accounted for. This phase of the study should consider the possibility that certain elements in literacy training might be more amenable to rigorous programming than others, and that certain elements might be made the subject of programmed homework, to be

combined with certain classroom procedures (the latter combination, of course, not being completely self-instructional). Problems of electro-mechanical implementation (i.e. "teaching machines," including tape recorders, disc players, and simple visual presentation devices) should be analyzed with respect to the physical and cultural conditions expected in various countries.

Phase 2. If the feasibility study should prove positive, this phase will develop such a prototype course. Provision must be made for field testing in the language area for which it was designed. Modifications in the prototype would be made on the basis of the field tests.

Phase 3. The construction of one or more such courses, using the prototype as a model, field testing in the appropriate language areas, and subsequent modification of the prototype where indicated by the results of field tests.

Socio-economic Studies. Projects 23 and 24 are documentary studies in this area.

23. A study of literacy diffusion processes in Japan and/or Mexico, and their relation to economic, social and political aspects of development. There seems to be an almost total lack of any historical dimension in discussions of literacy in the developing countries. A major task of documentary analysis is the examination of the conditions under which literacy was diffused and, equally important, maintained within the more advanced nations. To be sure, some conditions common enough in the early western world may not be present in some developing areas, but such studies would be generally most enlightening, and there could well be profound implications for literacy programs in the specific study of more recently developed countries such as Japan and Mexico.

24. A study of the "case histories" of literacy projects to date, as revealed in a variety of widely-scattered documents, with special emphasis on the factors

contributing to success or failure, and to other related consequences (cf. project 3). Efforts in the literacy field are not so new that no literature exists, yet there seems to have been no systematic attempt to draw together existing materials to provide a composite evaluation of what has already been done. Unless such a systematic synthesis of previous work materializes, it is likely that program planning errors will be repeated.

Projects 25-30 are <u>field studies</u> in the socio-economic area. At this point it would be well to point out the place of social surveys in socio-economic research. On even a limited scale, often at very low cost, they can provide information that may well be very useful at an early planning stage in a literacy program, such as, for example, indications of the attitudes of a population toward education. They will be very useful in conducting follow-up studies, furnishing, for example, information about the reading habits of the former students of a program. Survey techniques, however, have distinct limitations. They cannot meaningfully deal with "cause and effect" relationships as do controlled laboratory experiments. However, they can indicate significant patterns of correlation, e.g. the persistence of reading after formal training has been completed may be related to the age and sex of the learners. Carefully conducted surveys necessarily involve problems of sampling. An additional limitation is that even well-trained fieldworkers often find formal questionnaires extraordinarily difficult to use in largely non-literate societies. Nevertheless, social survey techniques will play an important role in the following recommended studies:

25. A study of the distribution of motivation to acquire literacy among population sub-groups in selected developing countries. The following related questions would be treated in detail: 1) What is the position of each sub-group in the traditional social structure? 2) Under what conditions, if any, might certain sub-groups become

"models" for other segments of the population? 3) What can be determined concerning the status and prestige of the literate in this society generally? 4) What can be determined concerning the status and prestige of suggested agents of literacy programs, e.g. the schoolteacher?

26. A project to extract and analyze certain attitudinal data already available on punch cards, field work already having been completed. A recent study conducted by the Turkish Ministry of Education Research and Measurement Bureau, with the assistance, under an AID contract, of an American research team headed by Dr. Fred Frye of the Massachusetts Institute of Technology, recorded on punch cards the responses of Turkish villagers to interview questions designed to elicit their attitudes concerning various cultural and social factors. It is proposed that those data which have implications for the aims, content and methods of literacy programs be extracted and analyzed.

27. Highly recommended are follow-up studies, which will usually take the form of small but intensive field studies intended to assess the success or failure and related consequences of literacy programs of fairly recent origin (cf. project 24, which proposes to examine existing reports). Important questions are: Do reading habits persist? If not, why not? What are the individual's needs for literacy in his community, and to what extent have these needs been satisfied by the degree of literacy he has acquired? Are significant behavioral and value differences between "graduates" of literacy programs and their non-literate peers apparent? Certain specific projects were suggested:

28. A suitable follow-up study should be made of the continuing Turkish Armed Forces Literacy Project, which was sponsored by the Turkish Ministries of Education and Defense and the American AID Mission, then ICA. The first actual teaching under this

project began in 1959 after two years of planning. The first graduates were discharged in 1961, making them ideal candidates for the proposed study.

29. Television and radio have been used as mass media of instruction in literacy programs. Phonograph records and tapes may have been used in various aspects of these and other programs. A two-part project is recommended: a) the collection of pertinent information, including a description of the materials and teaching procedures used and impressions of causes of success or failure, including scheduling problems; b) a field survey of the graduates of such programs designed to elicit information which could be analyzed for causes of success or failure attributable to the medium used.

30. In selected developing countries, a project is suggested to describe and evaluate the contribution to literacy of institutions lying outside both the formal school system and adult literacy programs, e.g. contributions of the educational activities of the military, of employers (particularly as these relate to the upgrading of the nominally literate) and of churches and other voluntary agencies. The activities of these groups, insofar as they do literacy work or reinforce it, may not have to be replicated in new programs which are to serve the same geographical area.

Other studies Useful projects can be designed on the assumption that a given medium or procedure is at least potentially effective in literacy programs. Such projects would be intended to yield ways of enhancing the advantages of the espoused medium or procedure or of compensating for its disadvantages (cf. pp. 11-12). A four-part project fitting this description was suggested, of which the first three could be undertaken concurrently:

31. a) A descriptive study of the conditions of operation and maintenance which adversely affect the operation of television and radio transmitting stations in

selected developing countries, with suggested remedial procedures. This study would suggest solutions to problems which arise because the manufacturer's recommended operation and maintenance instructions proved to be inadequate, because station engineers and service personnel were either unavailable or inadequately trained, because spare parts were hard to come by, or because of local climatic conditions or other difficulties.

b) A corresponding study of equivalent problems in the operation and maintenance of television and radio receiving sets, with recommended solutions. This study and the preceding one can be conducted quite independently of the use of these media in literacy projects.

c) A study of literacy programs which have used, or tried to use, television or radio, which would supply the operation and maintenance costs of both transmitting and receiving equipment, and state the relationship of such costs to the local budget of the program (cf. project 29).

d) Collation of parts a, b, and c should yield a procurement and maintenance manual designed especially for literacy programs using or contemplating using mass media of presentation in the selected countries. Only minor modifications should be required as the roster of countries is increased.

Costs and Budgets The conference deliberately avoided dealing with problems of costing and financing. The participants recognized, however, that the financing of literacy programs in countries with limited resources can pose severe problems, and that no one really knows how much it costs to make and keep a person literate. Educational costs vary so widely that it is almost impossible to establish acceptable formulas. One suggestion is recorded here, with hardly the status of a research

project, but quite relevant to case histories of future programs: in developing any literacy program or in connection with related experimental efforts, it would be helpful to keep good financial records and to make this information available to other developing countries.

## A KIT OF BASIC REFERENCE MATERIALS

The following books and articles constitute a minimum "kit" of reference materials dealing with literacy problems in developing countries. It is recommended that they be made available to AID personnel who request information on literacy, and that they be placed in appropriate USIA libraries. New efforts in the field will soon provide other useful sources of information.


Curle, Adam — World Campaign for Universal Literacy: Comment and Proposal (Harvard University, Occasional Papers in Education and Development, No. 1) Cambridge, 1964.

Gray, William S. — The Teaching of Reading and Writing, UNESCO and Scott, Foresman, and Company, Chicago, 1956.

Gudschinsky, Sarah C. — Handbook of Literacy. Revised Edition. Norman, Oklahoma, 1962.

Luebke, Paul T. — #1 "Publish What People Will Read," in Identifying Problems Affecting Adult Literacy Training in the Cento Region, (Report of the Cento Literacy Seminar). Ministry of Education, Tehran, Iran, 1964, pp. 79-93.

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UNESCO — Literacy Primers: Construction, Evaluation and Use (Manuals on Adult and Youth Education, #2) Paris, 1961.

------ — Simple Reading Material for Adults; Its Preparation and Use (Manuals on Adult and Youth Education, #3) Paris, 1963.

## Guidelines for AID

It is hoped that the research projects on the preceding pages will serve not only to guide AID and other agencies and institutions in the direction of productive work in literacy, but also to give both AID personnel and the field worker a good overview of the gaps in our knowledge in this field. There will always be, however, a time lag between enumerating research projects and getting them done. When results are finally available, there will tend to be a further time lag before they are applied. Yet guidelines are needed now. To this end, the following suggestions are set forth, in question and answer form. The answers to the questions are, for the most part, brief and in no sense exhaustive. They represent the opinions of the participants in the conference concerning the state of our knowledge in these matters, generously tempered by intuition, common sense, and, most important of all, years of practical experience.

1. What is meant by literacy, and how can the degree of literacy be measured?[8]

It is tempting to try to set quantitative standards for satisfactory literacy achievement. Some have suggested the level of achievement ordinarily reached by a child after four years of schooling. But difficulties arise if this standard is used, for the content of school curricula, the quality of the teaching, and the success of students over some arbitrary period of time vary greatly. Others have set as an objective the ability to read and understand a newspaper in the native tongue. One might well ask: understand <u>what</u> in a newspaper?

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8. See especially Paul T. Luebke, "Toward a Definition of Literacy," Kit, page 30.

A definition of literacy may help to clarify the question of standards. A UNESCO-sponsored definition of literacy[9] begins: "... a person is literate when he has acquired the essential knowledge and skills which enable him to engage in all those activities in which literacy is required for effective functioning in his group and community,...." This portion of the definition implies that literacy for the individual is indeed a relative matter, the degree of skill required depending on the conditions surrounding him, i.e. a person can be considered literate if his skill in reading and writing is useful to him in his day-to-day life. But if that were all there were to it, a person might be considered literate if he could sign his name, no more. The UNESCO definition therefore continues -- and these are important words --: "...and whose attainments in reading and writing and arithmetic make it possible for him to <u>continue to use these skills towards his own and the community's development</u> and for active participation in the life of his country." A bare minimum of reading and writing skill -- that does not grow -- can hardly contribute much to individual and community <u>development</u>, much less permit one to participate actively in national affairs. At the very least, one must learn to read until one can read to learn.

Therefore, each literacy program must first of all be conceived as an integral part of a total development program. Second, it must set standards of achievement in reading and writing that are clearly related to the community and national goals of that total program. This means that besides good basic instruction the literacy program must make available a continuing flow of reading material whose content is related to individual, community and national needs and so written as to make the individual <u>want</u> to continue to improve his skill and knowledge. Quantitative standards

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9. United Nations Economic and Social Council, <u>World Campaign for Universal Literacy</u>, 1963.

will then become less important. The success of the national literacy program can be evaluated by periodic assessments of continued demand for reading materials and by surveying individual performance in those aspects of personal, community and national life in which literacy plays an important part (see project 27).

2. What linguistic and pedagogical considerations must first be taken into account in dealing with basic problems of literacy education?[10]

This general question is best broken down into a number of more specific ones.

a) What is the "language situation," i.e. has the area been linguistically mapped?

The developing countries represent widely different language situations, but the following conditions are typical:

1) There may be two or more languages, sometimes a great many. Some of these may never have been studied or may have no alphabets or literature.

2) Sometimes the official language of the country is a "foreign language" to most or even all of the population.

3) In some cases one or more trade languages or lingua francas other than the official language are widely used.

4) A literary or classical form of the language may be in use, which is sharply different from local spoken varieties.

5) Any or all of the above may have local dialects.

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10. The final decision on many literacy matters must be made by the government of the country, since there are important political, social, and cultural as well as linguistic and pedagogical considerations. Particularly is this true of the choice of the language which is to be the medium of instruction. This matter is often emotionally highly charged, and "foreigners" should be careful about entering into discussion or offering advice. Any such advice should normally be limited to linguistic and pedagogical matters of the kind discussed below.

Where an accurate mapping of the language situation does not exist, expert linguistic help should be sought (see Appendix A).

b) What linguistic considerations affect the choice of the language of instruction?

Ideally, literacy teaching should be undertaken only if materials can be based on an adequate linguistic analysis. This is normally a long-term project. It would seem useful, therefore, to plan immediate literacy operations for speakers of the well-documented language or languages, with further operations based on the linguistic analyses as these become ready.

c) What linguistic considerations should be observed in designing teaching materials?

If an orthography, however inadequate, is presently in use, it probably should not be changed; indeed, it is quite likely that it could not be changed without political or social opposition, or both. Teaching materials should be developed in consultation with a linguist in order to compensate for orthographic inadequacies which cannot be eliminated. The advice of linguists may be helpful in determining the style of writing for primers and follow-up reading materials.

d) What pedagogical criteria can guide the choice of the language of instruction?

It should be noted that the skills involved in speaking a second language and the skills involved in reading it are very different and should not ordinarily be taught simultaneously. Reading skills should be taught on the basis of a familiar language and familiar content. New content, or the reading of a new language, should be taught on the basis of well-established mechanical skills. This means that

someone who really speaks two languages fluently can probably be taught in either language, with perhaps some advantage in his mother tongue. Ideally, no one should be admitted to a literacy class who cannot carry on a conversation in the language of instruction. Those who do not speak the language of instruction should be taught something of the language before beginning to learn to read or write.

e) Should monolingual speakers of a minority language be made literate directly in the official language?

It is pedagogically preferable that the mother tongue be used as a bridge. If this is not feasible, oral instruction in the official language should precede instruction in the mechanics of reading.

f) Should a highly specialized literary form of a language be used in initial teaching materials?

Preferably not. There would seem to be considerable advantage in using beginning materials which represent the spoken variety. This possibility should at least be explored before final decisions are made.

3. After people have acquired the basic skills of literacy, what steps should be taken to maintain these skills?

Literacy skills, like other skills, deteriorate and disappear if not used. Literacy programs, therefore, should not be undertaken without sufficient planning for using these basic skills after they have been acquired. It is recommended, therefore, that opportunities be provided both within and outside the educational system for new literates to continue to use their new skills as follows:

a) Within the educational system, provision should be made for actual classes

for new literates, who may still need the stimulation and control provided by a formal student-teacher relationship. Informal reading circles can also provide needed continuity.

b) Both in conjunction with such classes and groups, and for general distribution, steps should be taken to provide a good supply of interesting, easy-to-read books and pamphlets. Mobile libraries are an excellent investment. The planning necessary to make these items available should be included in the design of the basic literacy program itself.

c) On-the-job training or extension programs for industrial and agricultural employees should bear the reading requirements of new literates in mind, e.g. the language of reading materials must be both genuine and simple, the content both relevant and interesting. Such programs should consider making available collections of books which deal with individual aspects of different occupations. See Luebke #1, (Kit, page 30).

d) It is recommended that the development and use of both basic and follow-up materials be coordinated with similar efforts by all appropriate agencies, including those engaged in community development. See also project 30 and question 5.

4. What is the relationship between the goals and operations of adult literacy programs and the goals and operations of school systems?

A recent UNESCO paper comments:[11]

> ".....the most obvious long-term remedy for mass illiteracy is to cut off illiteracy at its source by ensuring universal and adequate primary education. Yet the expansion of primary school is not enough in itself, nor is it always fully

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11. UNESCO PRG 13 C/PRG4, September, 1964, page 7.

> effective, for it is well known that children returning from the primary school to largely illiterate adult communities rapidly fall back into illiteracy. In many countries, this phenomenon causes intolerable waste of the money spent on primary schooling. It is also a fact that literate parents .... have a vital effect on pre-school education.... and are less liable to allow absenteeism and premature 'drop-out' of their school-age children. In short, the primary school fits more creatively into a literate community, and parent-teacher-pupil relations are vitally improved by such a community. Hence the relationship of adult literacy and primary schooling should be regarded not as a relationship of competition or conflicting interest but as one of mutual support and reciprocity."

Further, it must be recognized that in many countries, in spite of compulsory school attendance laws, a high percentage of children of school age cannot attend schools for various reasons. Adult literacy classes provide the only opportunity for them to receive schooling. In setting up literacy training classes every effort should be made, therefore, to gear the teaching to include the requirements for this age group.

The place of adult literacy training in the overall administrative structure is an important consideration. If this task is made a responsibility of the Ministry of Education, it should be assigned to a separate department of adult education because of the specialized nature of adult learning. If it is assigned to other ministries or governmental or non-governmental groups, there should be liaison between the regular educational system and the literacy program. Graduates of adult literacy classes, under whatever administrative auspices, should be allowed to work toward the primary school certificate or higher, and the overall administrative organization should encourage them to do so. However, in countries where the economy is not ready to absorb a large number of educated persons or is already faced with the problem of the educated unemployed, it must be recognized that such a step might have adverse political and social consequences.

5. What place does literacy have in a total community development program?

It is clearly unwise to regard literacy as an aim in itself, unconnected with other

activities of the overall development program of a country. Yet it sometimes seems to be so regarded, especially where adult literacy is not under the aegis of the community development department. On the other hand, where it is under this department, there is the danger of divorcing it from the formal educational system. In any case, it is essential that the materials used be related to other current extension activities. This is especially true of the all-important follow-up literature required to maintain hard-won reading skills.

In certain circumstances, e.g. among certain isolated peoples in South America, considerable preliminary work, such as intensive medical treatment, may be necessary before literacy training can even be considered.

Where a program of community development has been initiated, there can be no set pattern of sequences in it. In some cases, people may see literacy as their first need; in others, other activities may be necessary in order to mobilize the community, such as health education, well-digging, bridge-building, or improvement in agricultural techniques. Each area should have individual treatment, where possible, bearing in mind that a demand for literacy may arise and spread with great rapidity. Should such a demand arise, the authorities concerned must be prepared to meet it as rapidly and efficiently as possible, since initial enthusiasm which is not satisfied will soon wane.

It is often true that functional literacy will bring about a better understanding of other extension activities, e.g. in agriculture, animal husbandry, health, nutrition, but conversely, these activities more often spark off an interest in literacy. If a useful degree of literacy is to develop in any community, the daily life of that community must require it. And it is obviously economical to integrate any literacy effort with other pertinent extension activities. See also project 30.

6. What supporting services does a large-scale adult literacy program require?

A large-scale adult literacy program needs many supporting services, and a study of just what services are available or must be made available should be an important part of preliminary program planning. The very term "supporting services" seems somehow to imply that they are subordinate or secondary to other elements in the program. This is simply not true, and if the following essential services are lacking and unaccounted for, it is hard to see how a literacy program can succeed.

a) Writing and illustrating services. For primers, a team consisting of a director with teaching experience, a writer, an illustrator, and local teachers; for follow-up materials, a team consisting of an educator-writer, a subject-matter specialist, and an illustrator. Such teams should be composed mainly of local personnel, but may need and profit from the advice of outside specialists, e.g. linguists and psychologists (cf. question 2,c). See also question 3, the UNESCO manuals and Luebke #1 (Kit, page 30).

b) Publishing and printing facilities. These may be located in an urban area which will serve as a central distribution point.

1) Editorial services.

2) Printing presses, adequately housed.

3) Storage space for printed materials.

4) Supplies, including paper, ink, and repair parts for presses. Poor supply channels can seriously impede the program.

5) Expanded newspaper and magazine service. Newspapers and magazines can furnish powerful support for the later phases of the program. Special steps may have to be taken to have them available in sufficient quantities at the right times and places.

c) Transportation facilities. The physical movement of both materials and personnel can be extensive. In some areas special arrangements may have to be made to get materials and staff to their destinations.

d) School supply services. In a developing country, pencils, pens, erasers, paper, etc., may not be available in the quantities needed, and reliable sources of supply must be located.

e) Equipment installation, operation, and maintenance services. If audio-visual aids (phonographs, tape recorders, projectors) or mass media of presentation (television, radio) are to be used, qualified operation and maintenance personnel must be available, as well as adequate repair facilities and spare parts. See also project 31.

f) Teacher training and retraining facilities. Special training is always required for new literacy teachers, regardless of their previous schooling or other teaching experience. See also question 7.

g) Research and experimentation facilities, including one or more testing and evaluation teams. See pp. 10-12, and question 8.

7. What factors should influence the selection and training of literacy teachers?

The selection and training of teachers is obviously a vital part of any literacy program. The setting of any number of years of formal schooling as a prerequisite is always arbitrary. Performance should always count more than years in school. However, experience seems to indicate that about seven years is a desirable minimum requirement for literacy teachers. Besides this minimum, some special training is always necessary, even for those who are or have been schoolteachers, because of the

specialized nature of the work.

It is often necessary, however, to employ teachers who have fewer than the minimum recommended number of years of formal schooling. An estimate of the prospective teacher's personality and potential for commanding respect in the community may be helpful in making a selection in such cases. Longer periods of special training can compensate for lack of formal education. The lower the personal level of achievement of the teachers, the more time will have to be spent in upgrading their own competence in reading and writing, in addition to the special training required, for no teacher can be expected to raise the achievement level of his students to more than a fraction of his own.

8. How can you evaluate the effectiveness of a literacy program (see also questions 1 and 6)?

It is essential to have an evaluation service as an integral part of a literacy program. If the country is large and literacy classes are going on in different regions, it will be helpful to have an evaluation team in every region. This will make it possible to assess the program while it is going on, and to communicate the results to the appropriate persons. Costs can be reduced by attaching the evaluation team to a university. The regional evaluation teams should begin to plan their operations perhaps a year before actual teaching begins, so that they can help to guide the agency or agencies responsible for the production of instructional materials, and for the selection and training of teachers and supervisors. The following aspects of an on-going program may be evaluated:

a) Classroom conditions, including distance from students' homes, seating, lighting, etc.

b) Teaching and related activities, e.g. the use of visual aids, the effectiveness of talks by extension officers, and of group discussions.

c) The teaching materials and methods. See pp. 9-12, and question 9.

d) Supervision.

e) Methods and frequency of testing.

f) Drop-out rates.

g) General consequences. After the program has produced "graduates," its general consequences should be evaluated. See project 27. At first, this might be done at six-month intervals. Experience should produce information regarding the rate of development of these general consequences, so that a realistic time schedule can be set up for this type of evaluation.

Evaluations should be completed with all possible speed. The function of evaluation is not to "find fault," but to improve the program. Simply "sending in the report" is often not very effective. It is better to organize meetings of key personnel to discuss questions raised by the report and to decide on suitable action.

9. What are the principal alternative instructional strategies in an adult literacy program?

The term "method" is often used to refer indiscriminately to a whole program or any one of its many components, e.g. TV method, linguistic method, sentence method, etc. "Instructional strategy" is here suggested to refer specifically to a "method" which results from the choice of particular components. Decisions concerning which strategy to use will be easier if the kinds of choices which underlie all instructional

# COMPONENTS OF INSTRUCTIONAL STRATEGIES FOR LITERACY PROGRAMS

**A**
**RESEARCH YIELDS**

basic reading units:*
correlations of writing system with

sounds
syllables
words
sentences

arranges learning tasks in ordered sequence

**B**
**CHOICE OF MEDIUM**

1. live classroom teacher
   1a. attendant
2. teaching machine
   2a = 2 + 1, 2b = 2 + 1a
3. radio
   3a = 3 + 1, 3b = 3 + 1a
4. television
   4a = 4 + 1, 4b = 4 + 1a

**C**
**CHOICE OF MATERIALS**

| a — for learner | b — for medium |
|---|---|
| 1. basic: primers** graded readers follow-up literature# | |
| writing materials: notebooks pencils, pens, paper | |
| | 2. teacher's guides |
| 3. supplementary:## | flash cards, wall charts |
| 4. special formats | 4a special formats |
| 5. special formats | |

**D**

1. group instruction
2. individual instruction

* See Gudschinsky pp. 29-52
** See UNESCO Manual #2, pp. 46-50, Gudschinsky, pp. 11-27
# See Gudschinsky, pp. 71-72, UNESCO Manual #3, Luebke #1
## See Gudschinsky, pp. 63-69

All references are to items in the Kit of Basic Reference Materials, page 30.

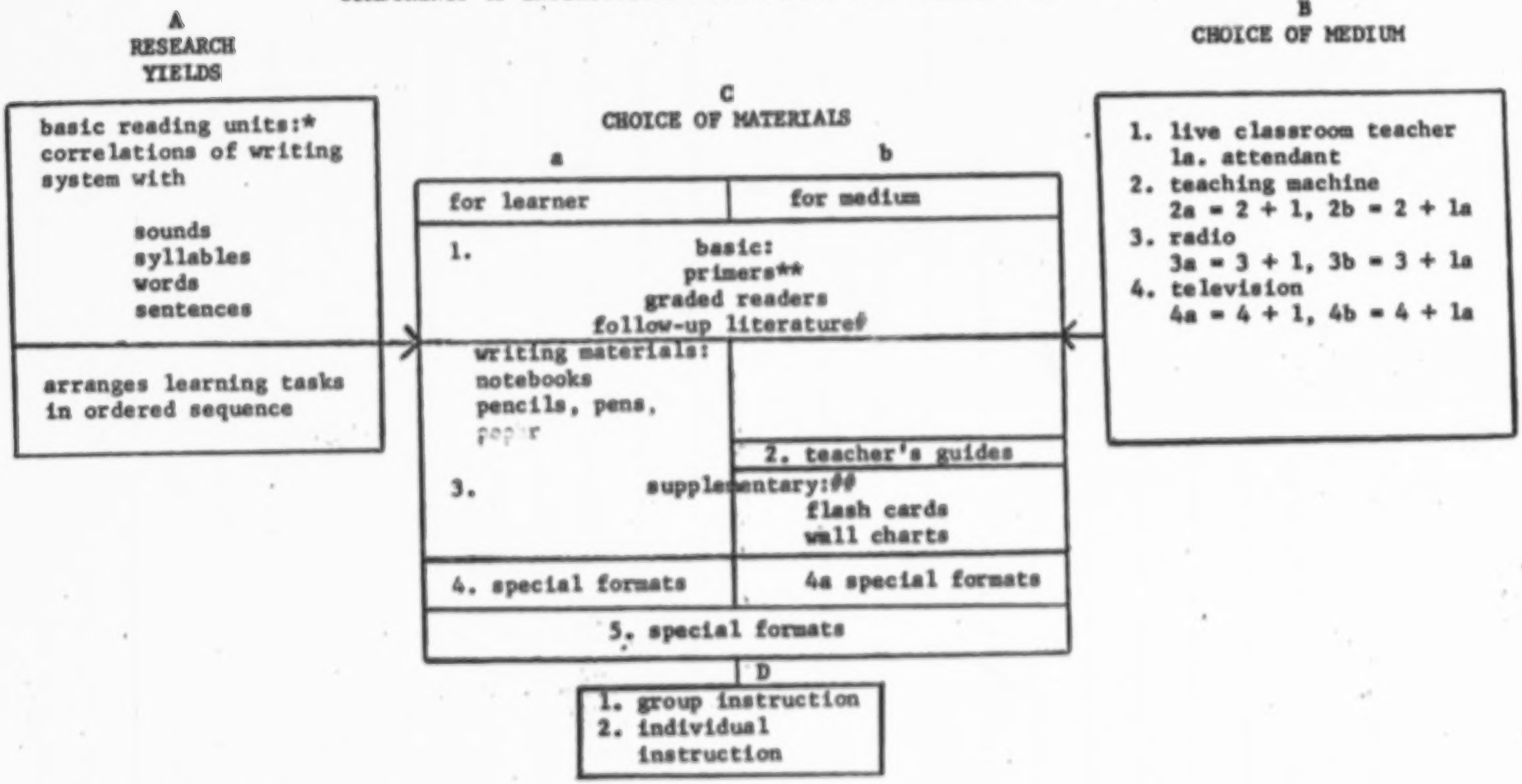
strategies, and the consequences of these choices, are understood.

a) Traditional strategy This is the strategy in which books and writing materials, ideally based on competent linguistic and psychological research, are made available to learners who work under the direct guidance of a classroom teacher who, again ideally, has had professional training. The diagram facing pages 43-45 merits careful study if the choices underlying this and other strategies are to become clear. Lettered boxes show the areas of choice. Box A (research of a certain kind) must underlie the choice of materials (box C) which are in turn influenced by the choice of medium (box B). A, B and C choices will be directed toward group or individual instruction (box D). Thus the principal choices underlying the traditional strategy described above are: A, B 1, C 1, C b 2, D 1. Supplementary materials which can be used by the teacher are shown in C 3.

The diagram emphasizes a most important fact, implied above. Box A (research which yields basic reading units and arranges the learning tasks in an ordered sequence) is common to every possible arrangement of components, and should therefore precede the making of instructional materials for any strategy, traditional or otherwise. Of course, this kind of work has already been done for quite a few languages, and adequate materials have been (or can be) constructed on this basis, but it should not be assumed that this is the case. For many critical language situations, this research remains undone, and teams of linguists and literacy technicians are a must if it is to be done effectively. If it is done, or has been done, then the traditional strategy is bound to be successful, if all other considerations have been equally carefully accounted for. See question 10, following.

b) Strategies using television or radio Television and radio are not complete strategies. They are components of strategies (box B). Other choices are necessary

COMPONENTS OF INSTRUCTIONAL STRATEGIES FOR LITERACY PROGRAMS




* See Gudschinsky pp. 29-52
** See UNESCO Manual #2, pp. 46-50, Gudschinsky, pp. 11-27
\# See Gudschinsky, pp. 71-72, UNESCO Manual #3, Luebke #1
## See Gudschinsky, pp. 63-69

All references are to items in the Kit of Basic Reference Materials, page 30.

to arrive at a complete strategy. Both media offer certain potential advantages. They multiply the effectiveness of a single master teacher, and thus could help to relieve teacher shortages. Television offers the possibility of great ingenuity in the use of visual materials. Both media present problems of scheduling and of equipment maintenance, and of compensating for the lack of direct communication between "teacher" and student.

Enthusiasm for the potential advantages of television and radio has often obscured the need for box A research on which to base the development of strategies involving these media. Unless this kind of research has been competently done, much time and money can be frittered away in elaborate planning for the clever presentation of inadequate materials.[12]

If box A research <u>has</u> been done, then experimental work can begin. Two to three years of careful experimentation and testing should produce fruitful results, but success cannot be guaranteed. The many choices can be read off the diagram. The choice of television, for example, requires a further choice among television alone (B 4, rather unlikely in many countries), television plus a live professional teacher in the classroom (B 4a, does not relieve teacher shortage), or television plus a non-professional attendant in the classroom (B 4b, promising). The choice of television also requires experimentation to arrive at "special formats" for the medium (C 4a), e.g. the television scripts and associated visual materials, and correlated materials for the student (C 4 or possibly C 1). No evaluations of work along these lines exist at the present writing. Certain kinds of surveys can provide much needed

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12. Obviously, both television and radio offer excellent ways of <u>promoting</u> literacy activities and for stimulating public interest in the objectives of literacy programs.

## COMPONENTS OF INSTRUCTIONAL STRATEGIES FOR LITERACY PROGRAMS

**A**
**RESEARCH YIELDS**

basic reading units:*
correlations of writing system with

sounds
syllables
words
sentences

arranges learning tasks in ordered sequence

**B**
**CHOICE OF MEDIUM**

1. live classroom teacher
   1a. attendant
2. teaching machine
   2a = 2 + 1, 2b = 2 + 1a
3. radio
   3a = 3 + 1, 3b = 3 + 1a
4. television
   4a = 4 + 1, 4b = 4 + 1a

**C**
**CHOICE OF MATERIALS**

| | a<br>for learner | b<br>for medium |
|---|---|---|
| 1. | basic:<br>primers**<br>graded readers<br>follow-up literature# | |
| | writing materials:<br>notebooks<br>pencils, pens,<br>paper | |
| | | 2. teacher's guides |
| 3. | supplementary:##<br>flash cards<br>wall charts | |
| 4. | special formats | 4a special formats |
| 5. | special formats | |

**D**

1. group instruction
2. individual instruction

* See Gudschinsky pp. 29-52
** See UNESCO Manual #2, pp. 46-50, Gudschinsky, pp. 11-27
# See Gudschinsky, pp. 71-72, UNESCO Manual #3, Luebke #1
## See Gudschinsky, pp. 63-69

All references are to items in the Kit of Basic Reference Materials, page 30.

background information, particularly concerning scheduling problems, costs, and problems of maintaining transmitting and receiving equipment. See projects 29 and 31.

Literacy authorities must be clearly aware of the experimental nature of this work before staking the fate of a national literacy program on it. But such work could be especially fruitful if a successful traditional strategy is already well developed.[13] See also pp. 11-12.

c) Programmed Instruction (see also pp. 22-24) The following observations are based on experience, not in literacy programs, but in other fields. Programmed instruction can be virtually a complete strategy, with most component choices self-contained in it. In the diagram these choices are shown as research (A), teaching machine (B 2), special formats which link student and machine via question and answer (C 5), and individual instruction (D 2). Many programs are designed to be completely self-instructional, although experience has shown that from time to time students must display what they have learned to a live person. Hence choices B 2a or B 2b on the diagram. Programmed courses could be designed to teach all or only part of the reading and writing skills, however. If a particular course teaches only part of the skills, it is not a complete strategy, and additional instruction will be required. Indeed, the traditional strategy might be enhanced by assigning parts of it, (e.g. learning to recognize and write letters of the alphabet) to programmed courses. Such courses could also be used to increase the efficiency of "homework."

The diagram does not fairly indicate the great promise of programmed instruction,

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13. For a good survey of related new-media problems, see J. R. Reid, "An Exploratory Survey of Foreign Language Teaching by Television in the United States," Reports of Surveys and Studies in the Teaching of Modern Foreign Languages, New York, 1961, pp. 197-211.

either as a complete strategy or as a component. Its real potential stems from its approach to box A research. What the student is to learn is carefully specified, and then broken up into optimally small steps ("frames") such that the learner makes very few errors and always knows whether he is right or wrong. It is the latter requirement of "immediate reinforcement," combined with the stipulation that the learner should proceed unaided and at his own pace, that leads to the need for some kind of individual "teaching machine." This may be a specially arranged book, a small machine no more complicated than a desk machine which dispenses sales receipts in a store, or something much more complex, offering both auditory and visual modes of presentation.[14]

If the great promise of programmed instruction stems from its approach to box A research, its weaknesses are to be found there as well. In successful "program" development, short learning sequences must be tested on students and repeatedly revised, an expensive and time-consuming task. Many so-called self-instructional "programs" have not really been built up in this way. Further, programming of itself offers no point of view about any particular subject matter; such a point of view has to be provided by the authors and the specialists they work with. Both acceptable and unacceptable notions of the subject matter of reading and writing could be well programmed or badly programmed. So literacy authorities must understand that they will not be able to accept or reject programmed instruction in general. It is almost meaningless to say "we tried programmed instruction and it didn't work." One can only try a particular course and see if it works, and it works if students learn

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14. For a good introduction to this subject, which deals with a related but even more complex field, see John B. Carroll, "A Primer of Programmed Instruction in Foreign Languages," International Review of Applied Linguistics in Language Teaching, Vol. 1, No. 2, 1963, pp. 115-142.

efficiently what the authors intended and the intentions of the authors correspond to what competent specialists agree that students should learn. If it does not work well, this should not prejudice the testing of appropriate revisions, or of other programmed courses.

But little work has been done in programmed instruction for the literacy field. At present there do not seem to be tested self-instructional courses that could constitute the basic instructional strategy in a literacy program. As such "programs" materialize and are presented to literacy authorities for adoption, answers should be gotten to questions like the following:

1. Does the material conform to research on the local language situation? See question 2.
2. Were linguists, psychologists and teachers involved?
3. What parts of the reading and writing skills does the program teach? Recognizing and writing letters of the alphabet? If so, much additional instruction will be required. But perhaps the program could be used to increase the efficiency of <u>that part</u> of the total instructional strategy.
4. If oral responses are required, how does the student know if he is right or wrong? Learning to read usually requires oral responses to print, at least in the early stages.
5. In the process of development were various sequences tried out on students and revised? A necessary condition.
6. How many times has the whole program been tried and revised? One field test and revision of the whole program is an absolute minimum.
7. What sort of equipment (teaching machine) is required, if any? Maintenance and supply problems must be scrutinized as carefully as for television and radio.

A programmed course may be in the process of development when it is offered to local authorities for field testing, i.e. a negative answer may have been received to question 6 immediately above. It is entirely in order, indeed highly desirable, for local authorities to cooperate in such field testing if conditions permit. It should

be understood, however, that the possibility of adoption may be a long way off, since the material may require several revisions before it is acceptable.

10. What are the desirable stages of a large-scale literacy program, and what are the principal problems?

As has been stated elsewhere in this report, political authorities often seek quick results by launching full-scale literacy campaigns with inadequate preparation. The world is littered with the debris of such campaigns. Where little or no preparation has been made and few facilities or materials exist, it is generally most inadvisable to announce the start of a literacy program or to expect actual teaching to begin in less than two years from the time the decision is taken and budget voted. Planning, administration, and support services require highly qualified technical specialists, and this may well mean that foreign aid will be necessary to provide experts and to train nationals abroad.

In the outline which follows, it will be clear that not all the indicated stages will be needed in all programs, and that stages may overlap or run concurrently. The time allocated to each stage is therefore a rough approximation.

| Stage | Approximate Time Required |
|---|---|
| 1. Preliminary study and program planning | 3-6 months |
| a. Establishment of a planning group, to include representatives of government departments and agencies, and individuals competent in the literacy field. | |
| b. Study of the extent and distribution of literacy, including an assessment of demand. | |
| c. The determination of general policy, including the kind of attack likely to be most productive (i.e. diffuse or selective: see Literacy and National Development, pp. 1-7). | |

| Stage | Approximate Time Required |
|---|---|
| d. The fixing of the stages to follow, and the assignment of budget. | |
| 2. Language study and analysis, and the construction of tentative learning sequences. The expert services of one or more qualified linguists may be required. See questions 2 and 9. | 6-18 months |
| 3. Establishment of a responsible literacy authority, where none already exists. Only local conditions can determine whether this should be a department of adult literacy in the Ministry of Education, of Information, or of Social Welfare; the authority is sometimes vested in a non-government agency financed by a government grant. In any case, inter-departmental collaboration will be needed. | 3-6 months, concurrently with stages 1 and 2 |
| 4. Overview of supporting services of various kinds, and establishment and staffing of those not already in existence. Much can be done in the time indicated, but expansion and improvement of these services will continue for several years. See question 6. | 6-18 months |
| 5. Choice of instructional strategy ("method") on the basis of stage 2, and the preparation, testing and publishing of teaching materials. Assuming the traditional instructional strategy (see question 9), a good set of class teaching materials in each language, adapted to adults in each distinct cultural environment, will need the expert services of a team, or teams, of educators, writers, artists, and local teachers. It is inadvisable to start full-scale teaching until materials have been tested in experimental classes, revised, printed, and arrangements made for their distribution or sale. | 18-24 months |
| 6. Selection, recruitment, training and deployment of teachers. See question 7. Teachers must be trained to use actual class materials and cannot be trained until stage 5 has been nearly completed. | 6 months +, concurrently with last stages of 5, and with 7. |
| 7. Organization of regional (provincial) and local literacy authorities. The necessary administrative set-up may fall within or outside the local school system, but must yield literacy committees responsible for making classrooms available, and for supervising teachers and providing them with the services they require. | 6-18 months, concurrently with 6, and at the end of earlier stages. |

| Stage | Approximate Time Required |
|---|---|
| 8. Preparation, publication, distribution and sale of follow-up reading materials. See UNESCO Manual #3 and Luebke #1, (Kit, page 30). Establishment of a "literature bureau" or suitable publishing agency. Printing and distribution facilities should be similar to those provided at stage 4. The development of adequate testing procedures may require foreign aid. | 6-18 months to staff and establish agencies and services, concurrent with later stages of 5, 6, and 7. |
| 9. Propaganda and publicity at suitable stages. But premature propaganda should be avoided at all costs. | continuing process |
| 10. Evaluation, built in as a service at stage 4. | continuing process |

## MANPOWER PROBLEMS

Of the various occupational categories required for literacy work, which include teachers, writers, illustrators, layout and publication specialists, and program administrators, there is an especially acute world-wide shortage of three kinds of persons:

1) High level literacy experts. These are qualified persons of wide experience who are able to serve as principal consultants to government and international agencies and private organizations, and as planners or directors of literacy programs.

2) Linguists specializing in literacy work. These are especially qualified to carry out the research required to devise orthographies and prepare teaching materials.

3) Literacy technicians. These are the people who must fill certain important supervisory positions and take part as specialists in the preparation of materials and teacher training.

High level experts in the literacy field are few in number, and it is difficult to produce new ones. The most likely source is the man or woman who has worked on one literacy project in one country, and whose competence can be increased rapidly by a series of special conferences, consultations, visits to literacy projects, and directed reading.

Linguists in general are in short supply and very few are interested in becoming specialists in literacy work. Certainly the possibilities of the literacy field should be brought to the attention of candidates for the Ph.D. in linguistics at all universities which offer this degree. The only sizable pool of linguists working in this

field is attached to the Summer Institute of Linguistics (SIL).[15] These linguists could serve as consultants in planning and carrying out literacy projects outside the SIL areas of operation.

The United States has an important role to play in the training of both American and foreign nationals as literacy technicians. Training programs designed to produce such people exist within specialized institutions such as missionary groups (including SIL) but there are very few courses or programs of study in the literacy field in regular academic institutions. Nevertheless, American universities have a powerful organizing potential[16] which should be encouraged to sponsor summer institutes and specialized training programs which would lead to a diploma or an M.A. in literacy studies. SIL might be able to cooperate in one or more such programs.

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15. United States Office, Box 1960, Santa Ana, California

16. Cf. University Resources in the United States for Linguistics and the Teaching of English as a Foreign Language, Center for Applied Linguistics, 1964

Appendix A

# What is a Scientific Linguist?

*[The following statement was prepared in March 1962 by the Center for Applied Linguistics at the request of various government agencies that have occasion to employ linguists. Although the statement has not been officially endorsed by any professional organization in the field, it has been reproduced in* LANGUAGE, *Journal of the Linguistic Society of America, Vol. 38, No. 4, Oct-Dec. 1962, pp. 463-4. It is reproduced here in the belief that it will be of interest to a wider audience.]*

A scientific linguist (also called a linguistic scientist, a linguistician, or most commonly in the profession, simply a linguist) is a specialist in linguistics, the systematic study of the structure and functioning of languages. (A linguist in this technical sense must be distinguished from a linguist in the everyday sense of a polyglot, one who speaks several languages. Cf. *Webster's New International Dictionary*, which gives both definitions of "linguist.") A linguist is qualified by training and experience to carry out such operations as the following: (1) preparation of a full-scale description of the sounds, forms and vocabulary of a language (including unwritten languages previously undescribed); (2) comparative study of two or more languages to determine their relationships; (3) determination of the nature and range of dialect variation within a language; (4) study of the history of the sounds, forms, and vocabulary of a language; (5) development of the general theory of linguistics.

In addition to such activities, a qualified linguist is able to apply linguistic science to practical language problems by undertaking, often in collaboration with specialists from other disciplines, such operations as the following: (a) preparation of a contrastive analysis between two languages to point out the similarities and differences between them on which to base instructional materials for teaching one of the languages to speakers of the other; (b) preparation of textbooks for language learning based on linguistic analysis; (c) preparation of tests of proficiency in a language or of aptitude for certain kinds of language learning; (d) analysis of the writing system of a language to determine how closely it correlates with the pronunciation and grammar; construction of an orthography for an unwritten language; (e) preparation of materials for teaching literacy in a given language; (f) analysis of language and the preparation of programs for machine translation from one language to another; (g) working out and evaluating language policies in government and education.

In recent years linguists have come to work more and more on topics which involve other disciplines, such as anthropology (with which linguistics has had a long association), psychology, mathematics, logic, speech pathology, and sociology; cross-disciplinary fields such as psycholinguistics, sociolinguistics and mathematical linguistics are now achieving recognition, and a small but growing number of linguists are specialists in them.

## Education of Linguists

Normally the education of an American linguist takes place in a regular program of graduate studies at one of the dozen or so major university centers for linguistic study in the country. Requirements for the Ph.D. in linguistics vary somewhat from one university to another, but all require an introductory course in linguistics, work in phonetics and phonemics, historical linguistics, and the study of specific languages. Most include requirements of work in morphology-syntax, field methods, Indo-European comparative studies, and at least one non-Indo-European language. A Ph.D. thesis is usually a study of the types (1)-(4) listed above. One common type consists of a descriptive grammar, with texts and vocabulary, of an American Indian language.

The overwhelming majority of American linguists, in addition to taking graduate work at a major university, have attended one or more sessions of the Linguistic Institute which is sponsored every summer by the Linguistic Society of America, the chief professional organization in the field. This summer Institute, which has been held every year since 1938 at one university or another, brings together for intensive work in the field faculty and students from all over the country and usually several distinguished linguists from abroad. Some American linguists have received their training largely outside regular university programs by work with missionary organizations, special language programs, or even self-study, but this pattern of education in becoming rarer.

## Careers in Linguistics

A small but important and highly influential number of linguists are teaching in the linguistics departments of universities. A larger number teach in other departments, generally modern languages or anthropology, but occasionally in departments of psychology or speech. In recent years a steadily growing number of linguists have been employed in centers of instruction for Asian and African languages either on the teaching staff or with research projects, including the preparation of textbooks and dictionaries. A few work on research projects related to communication engineering, usually with government support.

Several government agencies, such as the Foreign Service Institute of the Department of State, hire linguists to supervise language training programs. Others, such as the Department of the Interior, have linguists to carry out research on American Indian languages, or to work in specialized fields such as the determination of geographical names for mapping and other purposes.

Linguists are employed at centers of machine translation research at a number of places in the country, chiefly in university programs with U.S. Government support, but also in private industry.

One large group of American linguists is engaged either in the teaching of English as a foreign language in the United States or abroad, the preparation of textbooks of English, or in the planning and administering of English-teaching programs. Some of them are in positions with the United States Information Agency or other government agencies; others are with foreign governments, American universities, or other private organizations.

Another sizable number of linguists work with missionary organizations engaged in such operations as Bible translation, literacy programs, or the creation of orthographies for unwritten languages.

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Appendix B

## List of Participants

| | |
|---|---|
| Mushtaq Ahmed | Literacy House<br>Lucknow, India |
| G. Linwood Barney | Jaffray School of Missions<br>Nyack, New York |
| Jack Berry | Department of African Languages and Linguistics<br>Northwestern University<br>Evanston, Illinois |
| John B. Bowers | UNESCO<br>Place Fontenoy<br>Paris |
| James L. Brain | Syracuse University<br>119 College Place<br>Syracuse, New York |
| Richard W. Cortright | Laubach Literacy Fund<br>2000 P Street<br>Washington, D.C. |
| Charles A. Ferguson | Center for Applied Linguistics<br>1755 Massachusetts Avenue, N.W.<br>Washington, D.C. |
| Philip J. Foster | Comparative Education Center<br>University of Chicago<br>Chicago, Illinois |
| Sarah C. Gudschinsky | Summer Institute of Linguistics<br>Box 1960<br>Santa Ana, California |
| Alfred S. Hayes | Center for Applied Linguistics<br>1755 Massachusetts Avenue, N.W.<br>Washington, D.C. |
| Yolanda Lastra | Institute of Languages and Linguistics<br>Georgetown University<br>Washington, D.C. |

| | |
|---|---|
| Paul T. Luebke | Agency for International Development<br>U. S. Department of State<br>Washington, D.C. |
| Nancy S. Meltzer | Project Literacy<br>Cornell University<br>Ithaca, New York |
| Joe E. Pierce | Department of Anthropology<br>Portland State College<br>Portland, Oregon |
| Frederick J. Rex | National Council of Churches<br>475 Riverside Drive<br>New York, New York |
| Andree F. Sjoberg | South Asia Center and Linguistics Program<br>University of Texas<br>Austin, Texas |
| Donald F. Solá | Division of Modern Languages<br>Cornell University<br>Ithaca, New York |
| Seth Spaulding | International Education Program<br>School of Education<br>University of Pittsburgh<br>Pittsburgh, Pennsylvania |


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